

## PATENT SPECIFICATION



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742,615

Date of Application and filing Complete Specification: July 17, 1953.

No. 19847/53.

Complete Specification Published: Dec. 30, 1955.

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JIV

Index at acceptance:—Classes 19, J; 66, L(1:8B); and 125(3), T7F1.

## COMPLETE SPECIFICATION

## Improvements in or relating to Applicator Type Containers

We, KIWI POLISH COMPANY (PTY) LIMITED a Company incorporated under the laws of the State of Victoria, Commonwealth of Australia of Burnley Street, Richmond, Victoria, Australia do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to collapsible tubes of the kind comprising a cylindrical portion formed with an integral neck provided with an applicator plug fitted in the neck through which the substance contained in the tube is dispensed by exerting pressure on the tube, the neck orifice being closed by a cap when the tube is not in use.

It has previously been proposed to provide a collapsible tube of the kind above referred to in which the integral neck is cylindrical and has a diameter greater than one-half of the diameter of the cylindrical body of the tube and the applicator plug is supported on an apertured washer or other member made separately from the container, and fitted in the neck alone, or partly in the neck and partly in that part of the body adjacent the neck.

The object of the invention is to provide a collapsible tube of the kind referred to in which the applicator plug can be readily fitted and retained without requiring any separate supporting member.

With the foregoing object in view in a collapsible tube of the kind referred to made in accordance with the invention the neck is cylindrical and has an inside diameter of at least one half the inside diameter of the cylindrical body of the container and is separated from the latter by a transverse wall formed integral with the tube and extending across the bottom of the neck, the transverse wall forming a bottom support for the applicator plug and being suitably apertured to permit passage of the contents of the tube into the neck.

The absorbent or foraminous plug or swab may be made of a material through which the contents of the container can be forced

by applied pressure or through which a liquid will percolate by capillary action when brought into contact therewith. An absorbent or foraminous plug or swab of natural marine sponge or rubber sponge or other suitable sponge or foam material will serve the purpose well in many cases, but other forms of such plugs or swabs, e.g. a wad of paper or cloth produced by winding a narrow strip of the material, may be preferred for certain purposes.

The plug or swab may be fixedly secured in the open outer end of the neck or spout or, alternatively, will be held therein in a readily removable manner so that it can easily be removed for cleaning or replacement.

In the accompanying drawings which illustrate how the invention may be carried into effect:—

Fig. 1 is an elevational view, partly in section, of the upper part of the collapsible tube applicator type container embodying the invention;

Fig. 2 is an elevational view, partly in section, of the screw cap which forms the closure for the collapsible tube container;

Fig. 3 is a plan view of the collapsible tube container with the closure cap removed;

Fig. 4 is a sectional elevation of the collapsible tube container with the screw closure cap applied to cover the applicator plug or swab and seal off the delivery neck or spout, while

Figs. 5 and 6 are sectional elevational views of the upper parts of applicator type collapsible tube containers embodying alternative forms of the invention.

Referring to the drawings, the collapsible tube container comprises a thin walled tubular cylindrical body 1 formed at top with a co-axial tubular delivery neck or spout 3 having a comparatively wide bore 5 the inside diameter of which is at least one-half the inside diameter of the body 1, and provided around its external periphery with quick start screw threads 4. The neck 3 is separated from the body 1 by a transverse wall 2 formed with a central delivery orifice 6 through

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which the interior of the body 1 communicates with the bore of the neck or spout 3. Alternatively, as indicated in chain dot outline in Figs. 3 and 5, the transverse wall 2 may be provided with a plurality of delivery orifices 6a in addition to or in place of the single central orifice 6. As shown in the drawings the wall 2 is formed integral with the container.

10 Referring more particularly to Figs. 1—5, a closure cap 7, as shown in Fig. 2, formed with internal peripheral quick start thread grooves 8 which are adapted for engagement with the screw threads 4 of the container delivery neck or spout 3, is provided to close and seal off the delivery end of the container by sealing engagement of the outer end of the delivery neck or spout with the inner face of the diametrical wall of the closure cap when the latter is applied to the neck or spout as shown in Fig. 4.

In the embodiment shown in Fig. 6, a closure cap 11, formed with internal peripheral quick start thread grooves 8 which are adapted for engagement with the screw threads 4 of the container delivery neck or spout 3, is provided to seal off the delivery end of the container by sealing engagement of the outer end or rim 11a of the closure cap with the annular face of the shoulder 2a of the container head member 2.

Alternatively, instead of the quick start thread means described above, the delivery neck or spout 3 and the closure cap 7 or 11 may be provided with the complementary parts of bayonet joint coupling means or interrupted thread coupling means for rapid engagement of the closure cap with the delivery neck or spout or quick release of the one from the other. Again, alternatively, the delivery neck or spout and closure cap may be adapted to make a straight press fit one in the other.

The collapsible tubular container above described may conveniently be formed in known manner by extrusion of a suitable metal or synthetic plastic from which the requisite pliable container walls can be obtained. The closure cap may be formed by extrusion or pressure casting from a suitable metal or synthetic plastic.

The bore 5 of the delivery neck or spout 3 of the container forms a housing for a cylindrical plug or swab 9 of natural marine sponge or rubber sponge or other suitable sponge or foam material which seats upon the transverse wall 2 so as to cover the delivery orifice 6 and projects outwards from the open end of the neck or spout as shown in Figs. 1, 5 and 6. The plug or swab 9 which, of course, is readily compressible and resilient may be fixed to the wall and/or bottom of the bore 5 by a suitable cement which will suffice to retain the plug or swab in its operative position. (Figs. 1 and 6).

Alternatively, as shown in Fig 5, the bore 5 of the delivery neck or spout 3 is provided with internal grooves 10, e.g. formed as a continuous helix or screw thread, into which the resilient plug or swab can readily be screwed or forced to retain the latter in the bore in a readily removable manner. Other grooved and/or ridged formation of the internal peripheral surface of the tubular neck or spout may be provided for the same purpose. Furthermore, if it is not desired readily to remove the plug or swab from the bore of the delivery neck or spout when once secured therein as last described, a suitable cement may also be used to assist in retaining the plug or swab in position.

The applicator container in any of the forms above described can conveniently be used for expeditiously and cleanly applying any liquid or soft plastic substance e.g. a shoe cleaning or polishing cream or paste, to the surface to be cleaned or polished. To this end, with the closure cap removed and the applicator plug or swab in the position shown in Figs. 1 and 5, finger pressure applied in usual manner to the body 1 of a container which has been filled and has its bottom end sealed will force some part of the liquid or soft plastic contents through the foraminated plug or swab 5 to emerge upon the outer end face of the latter which can then be applied to and rubbed upon the selected surface. The tubular body of the container will provide a handle or finger grip for the convenient manipulation of the applicator plug or swab which may thus be used to distribute the contents of the container over the selected surfaces.

When not required for use, the applicator container shown in Figs. 1—5 can be closed by application of the closure cap 7 to the delivery neck or spout 3, as shown in Fig. 4. The resiliently compressible applicator plug or swab readily compresses in the direction of its axis to permit the closure cap to screw down to make sealing contact with the rim of the neck or spout and the applicator plug or swab is thus completely housed in the bore of the neck or spout and enclosed therein in a reasonably air-tight manner thus preventing undesired escape of the contents of the container and protecting the plug or swab from the surrounding air when not in use.

The closure cap 7 may be modified by providing an internal clearance recess of reduced diameter at its top or outer end above the screw thread grooves 8 to receive the outer protruding end of the plug or swab 9 and provide an internal shoulder for sealing engagement with the rim of the delivery neck or spout. In this manner, the compression of the plug or swab in its axial direction when the closure cap is applied to seal off the delivery neck or spout can be obviated, if so desired.

In the embodiment shown in Fig. 6, the

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closure cap 11 seals off the delivery neck or spout when the rim 11a of the applied closure cap engages tightly against the annular shoulder 2a of the container head member. In this case, the outer projecting end of the applicator plug or swab 9 is completely enclosed by the applied closure cap and thereby protected from the surrounding air when not in use, but is not necessarily compressed in the direction of its axis.

The closure cap 11 may also be modified to provide an internal shoulder above the screw thread grooves 8 which makes sealing contact with the rim of the neck or spout 3, when the rim 11a of the closure cap engages the shoulder 2a of the container head member.

An applicator container embodying the present invention has many applications and in addition to providing a means for conveniently and cleanly applying liquid and soft and plastic substances which are liable to soil the hands of the user, if brought into contact therewith, can be used with advantage in the convenient and hygienic application of medical and surgical liquids, pastes and ointments without contact with the user's hands or fingers.

What we claim is:—

1. An applicator type container for liquids or soft and plastic substances comprising a collapsible tube comprising a cylindrical body portion formed with an integral neck fitted with an applicator plug through which the substance contained in the tube is dispensed by exerting pressure on the tube and a cap for closing the neck orifice when the tube is not in use wherein the neck is cylindrical and has an inside diameter at least one-half the inside diameter of the cylindrical body of the container and is separated from the latter by a transverse wall formed integral with the tube and extending across the bottom of the neck, the transverse wall forming a bottom support for the applicator plug and being suitably apertured to permit passage of the contents of the tube into the neck.

2. An applicator type container according to claim 1 wherein the applicator plug or

swab comprises a piece or pieces of natural marine sponge or suitable artificial sponge, e.g. foam rubber.

3. An applicator type container according to claim 1 or 2, wherein the applicator plug or swab consists of a strip or strips of a suitably absorbent material wound into a compact body to fit in the outer open end of the delivery neck or spout of the container.

4. An applicator type container according to any of the preceding claims, wherein the internal peripheral wall of the delivery neck or spout is provided with continuous or interrupted grooves or otherwise ridged or depressed to enable a flexible and resilient applicator plug or swab to key to the said wall, thereby to fix the applicator plug or swab in the neck or spout.

5. An applicator type container according to any of the preceding claims, wherein the closure cap is provided with an internal surface which makes sealing contact with the rim of the delivery neck or spout when the closure cap is applied to the neck or spout.

6. An applicator type container according to any of the preceding claims, wherein the delivery end of the container body is provided with an annular shoulder with which the rim of the open end of the applied closure cap makes sealing contact.

7. An applicator type container according to any of the preceding claims, wherein the closure cap is provided at its top or outer end with an internal clearance recess to receive the outer protruding end of the applicator plug or swab so that the latter remains uncompressed in its axial direction when the closure cap is fully applied to the delivery neck or spout of the container.

8. An applicator type container for liquids or soft and plastic substances, substantially as hereinbefore described with reference to Figs. 1—4 or Fig. 5 or Fig. 6 of the accompanying drawings.

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12, Whitehall, London, S.W.1,  
Applicants' Solicitors.

Leamington Spa: Printed for Her Majesty's Stationery Office, by the Courier Press.—1955.  
Published at The Patent Office, 25, Southampton Buildings, London, W.C.2, from which  
copies may be obtained.

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## COMPLETE SPECIFICATION

1 SHEET

This drawing is a reproduction of  
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Fig. 2.

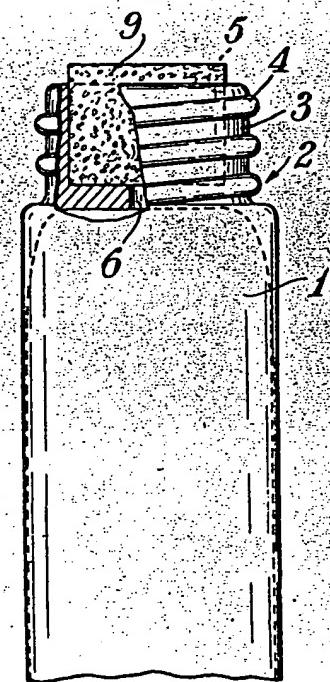
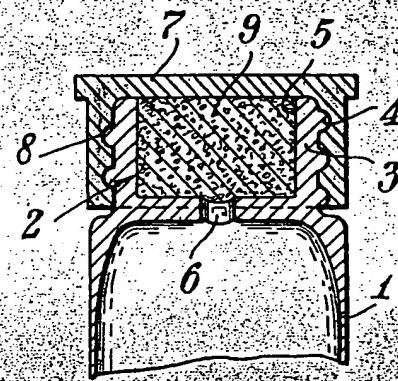
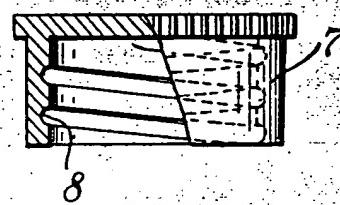


Fig. 4.

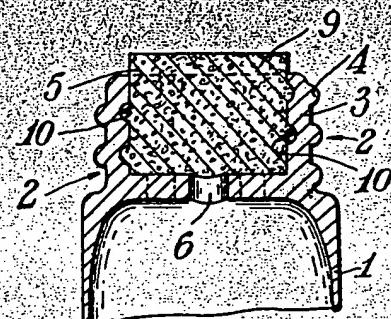


Fig. 5.

Fig. 1.

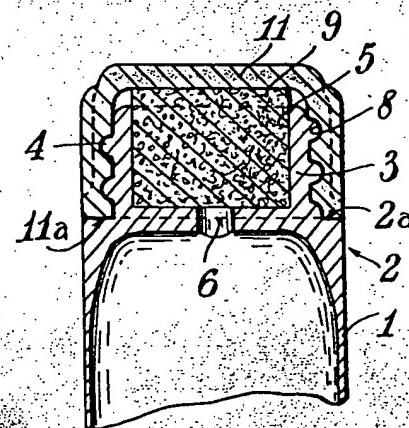
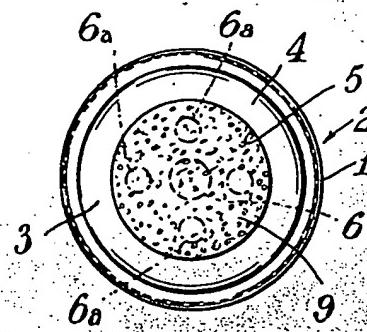


Fig. 3.

Fig. 6.